Attorney Docket: 044182-0308760

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION of: STROM et al.	Confirmation Number: 2939
Application No.: 10/801,944	Group Art Unit: 2889
Filed: March 15, 2004	Examiner: PARESH, Patel H.

Title: **SYSTEM AND METHOD OF MEASURING PROBE FLOAT**

DECLARATION OF JOHN STROM UNDER 37 C.F.R. § 1.132

I, John Strom, pursuant of 37 C.F.R. § 1.132, declare:

1. I received a B.S. in computer science in 1989 from North Dakota State University in Fargo, North Dakota.

2. I am currently employed as Principal Software Engineer at Applied Precision LLC in Issaquah, Washington.

3. I am an inventor of the above referenced application.

4. I am presenting this declaration to show that U.S. Patent 6,870,382 ("Harris") does not disclose the measurement of probe float in semiconductor probe cards.

5. I concur that Harris makes only one reference to semiconductor probe cards that employ probe "float," i.e. probe cards utilizing probe pins that are not electrically connected to the probe card in their free-hanging state. In column 5, lines 51-59, Harris refers to probe cards employing float as "vertical, piston configured probe cards, where the probe needle or pins *float* and do not make electrical contact until the probe pin is sufficiently pressed against the pad." *Id.* (*emphasis added*). Harris makes this reference while describing the limitations of optical solutions to measuring probe planarity and parallelism. Specifically, Harris states (1) that optical solutions are only capable of reporting mechanical contact, not electrical contact; and (2) that optical solutions are very slow and not feasible in the production environment. *Id.* The sole purpose of the reference to "probe float" is to dismiss the use of optical solutions for measuring probe planarity and parallelism. The passage is completely unrelated to *measuring probe float.*

6. Furthermore, I concur that Harris does not describe methods or formulas for measuring probe float in semiconductor probe cards employing float technology. In fact,

Harris' entire disclosure is explicitly limited to evaluating *probe planarity and parallelism.* Specifically, Harris evaluates probe planarity and parallelism based solely on the determination of the point of first electrical contact of probe tips to the pads of a semiconductor die. Harris, col. 4, lines 61-64; col. 5, lines 51-67 and col. 6, lines 1-11 and lines 28-48. As explained above, the probe pins of probe cards that employ float are not electrically connected to the probe card in their free-hanging state. "Float," in this context, is relevant to probe pins in a piston configuration and represents the vertical travel of the pin between first contact with a test surface and establishment of electrical contact with the probe card. Thus, float is a probe pin characteristic describing pin behavior initiating prior to the establishment of electrical contact. Logically, Harris' evaluation of probe planarity and parallelism based solely on the determination of the point of first electrical contact is not analogous or even instructive of a method of measuring probe float, a characteristic evaluated prior to making electrical contact.

8. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 10/23/07

John Strom